

# Public Health

## Controlling Antibiotic Resistance

Your prescribing habits and patient education drive appropriate use of antibiotics.

BY BEN TECHAGAICIYAWANIS, MPH, CHES, WITH ELIZABETH A. BANCROFT, MD, SM

**A**ntibiotic-resistant organisms and infections—linked to heavy use of antibiotics—are well known in hospital settings. However, there has been an increase of antibiotic-resistant infections in the outpatient setting.

In Los Angeles County, the proportion of *Streptococcus pneumoniae* isolates from sterile sites that are resistant to penicillin increased from 18 percent in 2003 to 23 percent in 2004.<sup>1</sup> In addition, the spread of methicillin-resistant *Staphylococcus aureus* and increasing fluoroquinolone resistance in gonorrhea in California has changed prescribing guidelines.

What had been considered first-line antibiotics are no longer useful in certain situations. Furthermore, pharmaceutical companies are cutting back on producing new antibiotics. Only 5 of 506 drugs that are currently in research and development by drug companies are antibiotics.<sup>2</sup> Now, more than ever, clinicians and patients need to learn how to use antibiotics appropriately to keep them effective.

There is a pervasive public misconception that antibiotics can treat viral illnesses. This drives public demand for antibiotics, even when individuals don't need them. Results from the 2002–03 Los Angeles County Health Survey show that only 32 percent of adults correctly reported that antibiotics are used for bacterial infections and nearly half of adults (46 percent) reported that they call their doctors for antibiotics when they have a cold or the flu.<sup>3</sup>

However, increased knowledge of antibiotics is associated with appropriate use. Adults who correctly responded that antibiotics are effective for bacterial infections were more likely to finish prescribed antibiotics (63 percent) and not obtain antibiotics from friends and family members (84 per-

cent) than those with incorrect responses (48 percent and 67 percent respectively).

### PRESSURE TO PRESCRIBE

As a new school year begins this fall, physicians can expect visits from concerned parents about their children's illnesses, especially colds, flu, bronchitis and sinusitis, most of which are caused by viruses. Parental pressure for a prescription antibiotic is a common problem that physicians say influences their decision to prescribe.

Although this pressure can be difficult to ignore, physicians should resist writing a prescription for antibiotics, especially when the patient hasn't been examined and when

it is not medically indicated. Additionally, when parents do not ask for an antibiotic prescription, physicians should not assume they expect one.

Studies have shown that communication by the physician influences patient satisfaction more than the receipt of an antibiotic, particularly when patients are told to contact the physician if symptoms do not improve.<sup>4,5</sup> If physicians can clearly explain diagnoses and appropriate treatment to patients and parents, inappropriate antibiotic prescriptions can be prevented.

All of these measures can have a positive impact on appropriate prescribing as there is good news about the use of antibiotics in children. New studies are showing that the rate of antibiotic use among children has started to decline.<sup>6,7</sup> Parents and physicians alike may be getting the message that appropriate antibiotic use is in everyone's best interest.

### STEMMING ANTIBIOTIC RESISTANCE

All physicians can take a leading role in controlling antibiotic resistance by changing their prescribing behaviors and conducting patient education with the following strategies:

**Prescribe Appropriately:** Conduct a complete evaluation of the patient before deciding to prescribe antibiotics. For example, the majority of acute sore throat cases are caused by viruses. Less than 20 percent of these cases are caused by group A streptococcal infection.<sup>8</sup> Follow clinical practice guidelines and use a rapid strep test, then let the results guide your management.

The Centers for Disease Control and Prevention provides clinical practice guidelines for otitis media, rhinitis, sinusitis, pharyngitis and bronchitis online at [www.cdc.gov/drugresistance/community/](http://www.cdc.gov/drugresistance/community/)

Figure 1: CDC Prescription Pad

The figure shows a sample of the CDC Prescription Pad. It includes fields for Name and Date, a diagnosis section with options for Cold or Flu, Middle ear fluid (Otitis Media with Effusion, OME), Cough, and Viral Sore Throat, and a general instructions section with options for extra water and juice, cool mist vaporizer or saline nasal spray, and sore throat relief. There is also a specific medicines section with options for fever or aches, ear pain, and other. A follow-up section asks if symptoms improved in 4 days. The form ends with a CDC logo and a signature line.

**Source:** Centers for Disease Control and Prevention. Download and photocopy at [www.cdc.gov/drugresistance/community/files/RX\\_form\\_4c.pdf](http://www.cdc.gov/drugresistance/community/files/RX_form_4c.pdf). Order bulk quantities at <http://bookstore.phf.org/subprod326.htm>.

technical.htm. The California Medical Association Foundation also provides a compendium of guidelines for acute respiratory tract infections online at [www.aware.md/clinical/clinical\\_guide.asp](http://www.aware.md/clinical/clinical_guide.asp).

**Offer Alternatives:** Recommend alternatives (fluids, antipyretics, antihistamines) to alleviate symptoms for viral illnesses such as cold and flu. Patients should be reassured that symptomatic treatment for their viral illness is sufficient and that antibiotics will not help them get better faster. The CDC has developed a “prescription pad” that physicians can use to explain why an antibiotic is not being prescribed and to recommend symptomatic treatments (See Figure 1, left).

**Explain Why:** Give patients a clear explanation of their diagnosis and the rationale for the use or non-use of antibiotics. Patients should be educated that antibiotics do not work for cold, flu or pain. Yellow-green upper respiratory mucus is not an indication that a patient needs an antibiotic. In addition, patients should be educated that taking unnecessary antibiotics puts them at risk for side effects, allergies and acquiring an antibiotic-resistant infection in the future.

**Instruct Proper Use:** If antibiotics are prescribed, instruct patients to follow the exact course of treatment. This includes taking the entire prescription and never stopping medication just because they feel better. Patients should also be instructed to never share antibiotics with others or save them for future use.

**Promote Prevention:** Patients should be informed of ways to prevent getting sick, which include hand washing and disinfecting areas at home and work. Physicians should also ensure patients keep their immunizations current, including influenza and pneumococcal vaccines.

As the potential for unnecessary antibiotic prescribing and use for viral illnesses is greatest during cold and flu season, physicians should also educate patients that antibiotics neither prevent nor treat colds and flu nor prevent secondary complications from colds and flu.

For more, see [www.lapublichealth.org/acd/antibio.htm](http://www.lapublichealth.org/acd/antibio.htm). ■

#### References

- 1) Annual Morbidity Report 2004. Unpublished report. Acute Communicable Disease Control Program. Los Angeles County Department of Health Services.
- 2) Spellberg B, Powers JH, Brass EP, Miller LG, Edwards JE Jr. Trends in antimicrobial drug development: implications for the future. *Clin Infect Dis* 2004;38(9):1279-86.
- 3) Los Angeles Health Survey Report:Antibiotic Misuse. Health Assessment Unit, Los Angeles County Department of Health Services. Available at [www.lapublichealth.org/acd/docs/lahealth092003\\_antib.pdf](http://www.lapublichealth.org/acd/docs/lahealth092003_antib.pdf).
- 4) Mangione-Smith R, McGlynn EA, Elliott MN, McDonald L, Franz CE, Kravitz RL. Patient expectations for antibiotics, physician-parent communication, and satisfaction. *Arch Pediatr Adolesc Med* 2001;155(7):800-6.
- 5) Brody DS, Miller SM, Lerman CE, Smith DG, Lazaro CG, Blum MJ. The relationship between patients' satisfaction with their physicians and perceptions about interventions they desired and received. *Med Care* 1989 Nov;27(11):1027-35.
- 6) McCraig LF, Besser RE, Hughes JM. Trends in antimicrobial prescribing rates for children and adolescents. *JAMA* 2002 Jun 19;287(23):3096-102.
- 7) Miller GE, Carroll WA. Trends in children's antibiotic use: 1996 to 2001. Rockville (MD): Agency for Healthcare Research and Quality; 2005. MEPS Research Findings No. 23. AHRQ Pub. No. 05-0020.
- 8) Diagnosis and treatment of group A pharyngitis strep. *Am Fam Physician* 2005 Mar 15;71(6):1064, 1066; author reply 1066.

**Ben Techagaiciyanis, MPH, CHES, is a senior health educator at the Los Angeles County Department of Health Services in the Acute Communicable Disease Control Program. He can be reached at [acdc2@ladhs.org](mailto:acdc2@ladhs.org).** **Elizabeth A. Bancroft, MD, SM, works as a medical epidemiologist for the Los Angeles County Department of Health Services. She can be reached at [acdc2@ladhs.org](mailto:acdc2@ladhs.org).**